1. (Amended) A system for detecting an analyte in a fluid comprising:

a light source;

a sensor array, the sensor array comprising:

a supporting member comprising a plurality of cavities formed within the supporting member; and

a cover layer;

a plurality of particles, the particles being positioned within the cavities, wherein the particles produce a signal when the particles interact with the analyte during use, and wherein the cover layer is positioned above the supporting member at a distance such that the cover layer inhibits dislodgement of the particle from the cavity during use;

a detector, wherein the detector detects the signal produced by the interaction of the analyte with the particle during use;

wherein the light source and detector are positioned such that light passes from the light source, to the particles, and onto the detector during use, and wherein the light source provides an area of light on an upper surface of the sensor array during use, wherein the area of light encompasses two or more cavities.